

WEST Search History

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<input type="checkbox"/>	L23	5912184.pn.	1
		<i>DB=PGPB; PLUR=YES; OP=ADJ</i>	
<input type="checkbox"/>	L22	20010001785.pn.	1
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<input type="checkbox"/>	L21	6194366.pn.	1
<input type="checkbox"/>	L20	5876508.pn.	1
<input type="checkbox"/>	L19	((polishing pad) with clean\$) and (amine or amide)	48
<input type="checkbox"/>	L18	L16 and (amine or amide)	0
<input type="checkbox"/>	L17	l16 and (amine or amide)	0
<input type="checkbox"/>	L16	(3887405 4062463 4202071 4382308 4680893 5035749 5167667 5317778 5357645 5361449 5484323 5486134 5490809 5531861 5532094 5578529 5581837 5616069 5624501 5639311 5643406 5645682 5651160 5664990 5675856 5692947 5693148 5725417 5778554 5806126 5857898 5875507 5876508 5879226 5922136 6022837 6062955)! [pn]	37
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<input type="checkbox"/>	L13	5846336.pn.	1
<input type="checkbox"/>	L12	l6 with (amide or amine)	37
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<input type="checkbox"/>	L9	L8 same (amide or amine)	2
<input type="checkbox"/>	L8	L6 with conditioning	663
<input type="checkbox"/>	L7	L6 with condition\$	1275
<input type="checkbox"/>	L6	polishing pad	4915
<input type="checkbox"/>	L5	L4 and (amine or amide)	1
<input type="checkbox"/>	L4	5846336	28
<input type="checkbox"/>	L3	markoff and polishing pad	15
<input type="checkbox"/>	L2	L1 and (clean\$ or conditio\$).ti.	11
<input type="checkbox"/>	L1	pad and cmp and (amine or amide) and acid and (clean\$ or conditio\$)	431

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L12: Entry 23 of 37

File: USPT

Jun 25, 2002

DOCUMENT-IDENTIFIER: US 6409581 B1

**** See image for Certificate of Correction ****

TITLE: Belt polishing pad method

CLAIMS:

50. A method of polishing a surface, the method comprising:

providing a belt polishing pad having:

a longitudinal perimeter;

an abrasive material fixed in the polishing pad; and

an external surface including a plurality of non-planar structures, each said structure having a broken linear configuration that is unparallel with respect to the longitudinal perimeter of the belt polishing pad;

wetting a surface on semiconductor substrate and said belt polishing pad with a polishing solution having a pH from about 7 to about 12 that is selected from the group consisting of aqueous potassium hydroxide, ammonium hydroxide, and organic amines; and

moving at least one of said belt polishing pad and said semiconductor substrate in mutual contact.

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L12: Entry 18 of 37

File: USPT

Jan 21, 2003

DOCUMENT-IDENTIFIER: US 6509269 B2

TITLE: Elimination of pad glazing for Al CMP

Detailed Description Text (6):

Given the present disclosure and objectives, the appropriate amount and type of surfactant can be determined in a particular situation. For example, it was found that an abrasive slurry containing about 0.02 to about 5% by wt., e.g. about 1 to about 2% by wt., of a non-ionic surfactant, such as ethoxylated alcohols, glycerol esters, or alkanol amides, effectively eliminated or substantially reduced polishing pad glazing during CMP of Al. Embodiments of the present invention comprise CMP of Al employing a polishing pad slurry comprising about 1 to about 10 wt. %, e.g., about 3 to about 5 wt. % abrasive Al.sub.2 O.sub.3 particles, as having a particle size of about 200 to about 300 nanometers, about 1 to about 5 wt. %, .e.g., about 2 to about 3 wt. % of an oxidizing agent, such as hydrogen peroxide, about 0.02 to about 5 wt. %, e.g., about 1 to about 2 wt. % of a non-ionic surfactant, such as ethoxylated alcohols, glycerol esters or alkanol amides, the remainder deionized water.

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L12: Entry 26 of 37

File: USPT

Feb 20, 2001

DOCUMENT-IDENTIFIER: US 6190240 B1

TITLE: Method for producing pad conditioner for semiconductor substrates

Brief Summary Text (5):

In one example of the CMP process, a polishing pad is used, which comprises polyurethane resin or the like, and a chemical slurry of around pH 9 to 12, the chemical slurry being a suspension consisting of an alkaline solution, e.g. caustic soda, ammonia, amine or the like, and silica particles. Polishing is performed by bringing a semiconductor substrate into relatively rotational contact with the polishing pad while supplying a flow of the chemical slurry onto the polishing pad. When conditioning the polishing pad, closed substances and foreign substances are removed by conditioning with utilization of an abrasive tool on which diamond grains are supported by an electrodeposited layer, conditioning while supplying a flow of water or the chemical slurry onto the polishing pad.

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L19: Entry 6 of 48

File: USPT

Nov 2, 2004

DOCUMENT-IDENTIFIER: US 6811680 B2

TITLE: Planarization of substrates using electrochemical mechanical polishing

Detailed Description Text (101):

The electrolyte solution may further include one or more electrolyte additives, such as brighteners, enhancers, and/or surfactants that adsorb onto the surface of the substrate. The additives may be present in the electrolyte solution up to about 15% by weight in volume of total solution. Useful additives include one or more chelating agents having amine groups, amide groups, carboxylate groups, dicarboxylate groups, tri-carboxylate groups, or combinations thereof. For example, the chelating agents may include tetraethylenepentamine, triethylenetetramine, diethylenetriamine, ethylenediamine, amino acids, ammonium oxalate, ammonia, ammonium citrate, citric acid, and ammonium succinate.

Detailed Description Text (127):

Optionally, a cleaning solution may be applied to the polishing pad during or subsequent each of the polishing process to remove particulate matter and spent reagents from the polishing process as well as help minimize metal residue deposition on the polishing pads and defects formed on a substrate surface. An example of a suitable cleaning solution is ElectraClean.TM. commercially available from Applied Materials, Inc., of Santa Clara, Calif.

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Ammonium Hydroxide
+ Citric acid.

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L19: Entry 8 of 48

File: USPT

May 25, 2004

DOCUMENT-IDENTIFIER: US 6740629 B2

TITLE: Composition for washing a polishing pad and method for washing a polishing pad

Brief Summary Text (32):

The composition for washing a polishing pad of the present invention usually contains an aqueous solvent as solvents for the above-mentioned component for rendering water-soluble and the above-mentioned component forming a water-soluble complex. The composition for washing a polishing pad of the present invention can contain an additive such as a pH adjusting agent and a surfactant if necessary. The pH adjusting agent includes an organic acid such as p-toluenesulfonic acid, dodecylbenzenesulfonic acid, isoprenesulfonic acid, glconic acid, lactic acid, citric acid, tartaric acid, malic acid, glycol acid, malonic acid, formic acid, oxalic acid, succinic acid, fumaric acid, maleic acid, phthalic acid and benzoic acid, an inorganic acid such as nitric acid sulfuric acid and phosphoric acid, an organic base such as methyl amine, ethyl amine and ethanol amine, an inorganic base such as sodium hydroxide, potassium hydroxide and sodium carbonate, and the like. Among these, organic acid, inorganic acid and organic base are preferred. And the pH adjusting agent may be used alone or in combination of two or more. The surfactant includes a cationic surfactant such as aliphatic amine salt and aliphatic ammonium salt, and the like, an anionic surfactant such as carboxylic acid salts exemplified as aliphatic acid soap and alkylether carboxylic acid salt, sulfonic acid salts exemplified as alkylbenzenesulfonic acid salt, alkylnaphthalenesulfonic acid salt and .alpha.-olefinsulfonic acid salt, sulfate ester salts exemplified as higher alcohol sulfate ester salt and alkylethersulfate salt, phosphate ester salts such as alkylphosphate ester, and the like, a nonionic surfactant such as ether-based surfactant exemplified as polyoxyethylenealkylether, etherester-based surfactant exemplified as polyoxyethylene ether of glycerin ester, ester-based surfactant exemplified as polyethylene glycol fatty acid ester, glycerin ester and sorbitan ester, and the like. By adding an appropriate amount of the above-mentioned surfactant, there is the effect of increasing the efficiency of removing a water-insoluble compound, a wastage generated during polishing and abrasive remained in a slurry are effectively removed.

Brief Summary Text (37):

In addition, when the polishing pad and the composition for washing a polishing pad are contacted, a contact may be just performed but other physical force may be applied thereto at the same time. That is, when the composition is supplied by adding dropwise as described above, a bare wafer (wafer containing no metal part) is used instead of a semiconductor wafer and the bare wafer can be slid to the polishing pad. Alternatively, a dresser may be used at the same time as conventional one. Further, the surface of a polishing pad may be cleaned with a brush or the like. In addition, when contact is performed by soaking, a high pressure stream is generated and can be applied to the surface of a polishing pad, or an ultrasound may be loaded thereto.

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L19: Entry 8 of 48

File: USPT

May 25, 2004

DOCUMENT-IDENTIFIER: US 6740629 B2

TITLE: Composition for washing a polishing pad and method for washing a polishing pad

Brief Summary Text (32):

The composition for washing a polishing pad of the present invention usually contains an aqueous solvent as solvents for the above-mentioned component for rendering water-soluble and the above-mentioned component forming a water-soluble complex. The composition for washing a polishing pad of the present invention can contain an additive such as a pH adjusting agent and a surfactant if necessary. The pH adjusting agent includes an organic acid such as p-toluenesulfonic acid, dodecylbenzenesulfonic acid, isoprenesulfonic acid, glconic acid, lactic acid, citric acid, tartaric acid, malic acid, glycol acid, malonic acid, formic acid, oxalic acid, succinic acid, fumaric acid, maleic acid, phthalic acid and benzoic acid, an inorganic acid such as nitric acid sulfuric acid and phosphoric acid, an organic base such as methyl amine, ethyl amine and ethanol amine, an inorganic base such as sodium hydroxide, potassium hydroxide and sodium carbonate, and the like. Among these, organic acid, inorganic acid and organic base are preferred. And the pH adjusting agent may be used alone or in combination of two or more. The surfactant includes a cationic surfactant such as aliphatic amine salt and aliphatic ammonium salt, and the like, an anionic surfactant such as carboxylic acid salts exemplified as aliphatic acid soap and alkylether carboxylic acid salt, sulfonic acid salts exemplified as alkylbenzenesulfonic acid salt, alkylnaphthalenesulfonic acid salt and .alpha.-olefinsulfonic acid salt, sulfate ester salts exemplified as higher alcohol sulfate ester salt and alkylethersulfate salt, phosphate ester salts such as alkylphosphate ester, and the like, a nonionic surfactant such as ether-based surfactant exemplified as polyoxyethylenealkylether, etherester-based surfactant exemplified as polyoxyethylene ether of glycerin ester, ester-based surfactant exemplified as polyethylene glycol fatty acid ester, glycerin ester and sorbitan ester, and the like. By adding an appropriate amount of the above-mentioned surfactant, there is the effect of increasing the efficiency of removing a water-insoluble compound, a wastage generated during polishing and abrasive remained in a slurry are effectively removed.

Brief Summary Text (37):

In addition, when the polishing pad and the composition for washing a polishing pad are contacted, a contact may be just performed but other physical force may be applied thereto at the same time. That is, when the composition is supplied by adding dropwise as described above, a bare wafer (wafer containing no metal part) is used instead of a semiconductor wafer and the bare wafer can be slid to the polishing pad. Alternatively, a dresser may be used at the same time as conventional one. Further, the surface of a polishing pad may be cleaned with a brush or the like. In addition, when contact is performed by soaking, a high pressure stream is generated and can be applied to the surface of a polishing pad, or an ultrasound may be loaded thereto.

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months from the mailing of the action from which the appeal was taken?

Yes, extensions of time under § 1.136(a) are required for filing an RCE or amendment after two months from the filing of the notice of appeal, even if the RCE or amendment is filed within the three months from the mailing of the action from which the appeal was taken.

Questions related to Appeal Brief Contents or Requirements for Papers Filed after Appeal:

A4. If the notice of appeal is filed before the effective date of September 13, 2004 and the brief is filed by appellant on or after the effective date, would the appeal brief be required to comply with the content and format requirements of § 41.37(c)?

Yes, any appeal brief filed on or after September 13, 2004 must be in compliance with the requirements set forth in § 41.37(c) and be accompanied by the appropriate fee under § 41.20(b)(2). If the brief does not comply with § 41.37(c), an amended brief will be required under § 41.37(d).

Exception: If the appeal brief is filed with a certificate of mailing or transmission under § 1.8 and the date on the certificate of mailing or transmission is before September 13, 2004, the appeal brief may comply with either former § 1.192 or new § 41.37, even if the appeal brief is received by the Office on or after September 13, 2004.

A5. Would the Office accept an appeal brief filed before the effective date of September 13, 2004 that is in compliance with § 41.37(c)?

Yes, a brief filed before September 13, 2004 that is compliant with the new § 41.37(c) will be acceptable.

A6. If an appeal brief filed before the effective date of September 13, 2004 fails to comply with the content and format requirements of § 1.192 and the Office mails appellant a Notice that correction is required, would an amended appeal brief filed on or after the effective date be required to be in compliance with § 41.37(c)?

No, an amended appeal brief, based on an appeal brief originally filed prior to September 13, 2004, would be acceptable if it complies with either former § 1.192 or § 41.37(c), regardless of when the Office mailed a Notice requiring correction of the noncompliant appeal brief.

A7. If, after a final rejection or an appeal, applicant or appellant files an amendment, affidavit or other evidence on or after the effective date, will the revised or new rules in the BPAI Final Rule apply?

Any affidavit or other evidence filed after a final rejection, or an appeal, on or after the effective date, will be subject to the revised or new rules (*i.e.*, the revised § 1.116 or new § 41.33).

Questions related to Examiner's Answers and Supplemental Examiner's Answers:

A8. If the appeal brief is filed before the effective date of September 13, 2004, but the examiner's answer is mailed on or after the effective date, can the examiner's answer include a new ground of rejection?

Yes, an examiner's answer mailed on or after September 13, 2004 may include a new ground of rejection (with Technology Center Director or designee approval) in compliance with § 41.39. Any examiner's answer mailed before September 13, 2004, however, may not include a new ground of rejection. See former § 1.193.

A9. Can the examiner provide a supplemental examiner's answer under § 41.43 on or after the effective date of September 13, 2004 in response to any new issue raised in a reply brief that was filed before the effective date?